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ABSTRACT

This paper presents findings of a study that examined the effect of high school students' participation in a business-education partnership on the following student outcomes: graduation from high school, college attendance, and employment status. The treatment program, operated by the East San Gabriel Valley Regional Occupational Program (ROP), serves many of the vocational training needs of six school districts in eastern Los Angeles County (California). ROP is a network of partnerships with institutions of higher education, social-service agencies, professional associations and clubs, and the business community. Data were collected from three groups--a control group of general-track high school students, one treatment group with one year of career training, and a second treatment group with two years of training. Telephone interviews were conducted with students and program instructors. Findings indicate that the treatment groups demonstrated higher graduation rates, greater rates of involvement in higher education, higher levels of full-time employment, and higher levels of work in management-level jobs. It is recommended that educational agencies and businesses share the responsibility for promoting lifelong learning through continued education. Partnerships should be forged with businesses that value education for its contribution to a quality work force, and educators can increase student awareness of businesses that support education. Seven figures are included. (LMI)

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Business/Education Partnerships' Impact on High-School Student Graduation from High School, Continuing Education, and Job Status

A paper presented

at the

annual meeting of the

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on April 14, 1993

in Atlanta, GA

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by

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EA 025 329

Abstract

This paper deals with the job training and placement issues associated with school and business partnerships that are developed to provide students with workplace learning opportunities. This study examines the interrelationships between the student outcomes and business involvements. This perspective on the relationships between businesses and students sheds light on the impact of involvement in business/education partnerships particularly on high-risk students.

Background

The treatment program is operated by the East San Gabriel Valley Regional Occupational Program (ROP) which serves many of the vocational training needs of six school districts in eastern Los Angeles County. The ability to provide a variety of services to students is facilitated by a network of partnerships with various institutions and agencies. Partnerships with institutions of higher education provide improved articulations between high school and college vocational curricula. By granting college credits for courses taken at the high school level, students are encouraged to pursue advanced training. Partnerships with various social service agencies assure students of the necessary supports to stay in school and keep focussed on their career goals and aspirations. Student associations and clubs provide avenues for networking and competitions within the career field. Partnerships with businesses provide students with job training, coaching, tutoring, and mentoring which smooth the transition from school to work. All the parts of the model are designed to work together to transform troubled youth into productive members of society.

Methodology

Three groups were selected for comparison, a control group of general-track high school students, one treatment group with one year career training, a second treatment group with two years of training that included placement in business for an extended period. Student GPA at the sophomore level were not significantly different between and among the three groups. Telephone follow-up interviews were conducted within four years of high school completion to determine graduation from high school, attendance in higher education, and employment status. Cross tabulations and chi-square analysis of significance were conducted to determine differences between the groups. Interviews with program instructors, and participation in development of refined follow-up instruments led to additional insights and conclusions on the nature of the relationships between training agencies, businesses, and students.

Findings

Graduation rates were higher for treatment groups. Involvement in higher education was greater for treatment groups. Full time employment was significantly higher for treatment groups. Work in management level jobs was significantly higher among treatment groups.

Conclusions

This successful model program seems to have positive effects on its participants compared to similar students in the same high schools. Chances of full-time employment are improved the longer students are involved in the program. Chances for continuation in college are most strongly influenced by GPA, but may be affected by the business in which the training is done or the business into which recent graduates are hired. The responsibility for promoting life-long learning through continued education must be shared between educational agencies and businesses. Teachers give students the greatest service by placement in businesses which have clearly defined career ladders and offer students opportunities for advancement, including continued training and education. Partnerships should be forged with businesses which value education for its contribution to a quality work force. Educators can have a role in encouraging businesses to support further training by making students aware of the differences between businesses, and by including in student follow-up surveys, questions about student's chances for advancement and education.

Table of Contents

Basic Information 1
- Background on Partnerships 1
- Setting for the Program 2
- Original Developer 3
- Intended Audience 3

Description of the Program 4
- Goals 4
- Background, Foundation, and Theoretical Framework 4

Analysis of Program Effectiveness 6
- Hypotheses 6
- Research Methodology 7
  - Design 7
  - Sample 7
  - Instruments and Procedures 8
  - Data Collection 8
  - Data Analysis 9

Description of Results For Each Hypothesis 9
- Treatment More Likely to Graduate from High School 9
- Treatment More Likely to Pursue Higher Education 9
- Treatment More Likely to be Employed 10
- Treatment More Likely to Get Upwardly Mobile Jobs 10

Interpretation and Discussion of Results 11
- Relationship Between Treatment and Effect 11
- Control of Rival Hypotheses 14

Educational Significance of Results 15

Appendix A - Follow-up Phone Interview Questions 16

Basic Information

Background on Partnerships

In recent years educational systems have struggled to keep pace with the enormous economic and technological changes. The gap between education and industry has been most visibly evident at the high school level where outdated curricular, instructional, and organizational structures have persisted to make the high school experience largely irrelevant to many students. Information that is packaged by discipline, delivered by lecture, in the context of a hierarchical organization modeled after the factories of the 19th century simply does not meet the needs of youth who live in a fast-paced, high tech age in which information is the chief commodity of commerce, and the workplace in increasingly characterized by cooperative team decision making..

No longer is productivity defined as a disciplined ability to complete a routine task on one's own, but rather, as an ability to use information from a variety of sources to make sound decisions in a team effort. Today's workers are more like researchers, while their parents functioned as manufacturers.

Throughout the decade of the 1980's the educational system in this country has been undergoing a process of self analysis and alteration in an attempt to adapt to the changes in society. The rate at which school have successfully adapted to the needs of today's youth has been slow. System-wide change has not come easily; the larger the system, the greater has been the resistance to change. Government involvement at various levels has also been promoting changes in education. In the early 1980s the federal government report on schools "A Nation at Risk" painted a rather negative picture of american schooling. This report triggered a chain reaction of school repair and reform movements that are still having a profound influence in the 1990s.

One component to the national agenda for educational reform was to involve businesses and communities more actively in their local schools. In the mid 1980s the National Association of Partners in Education was established. This organization has grown from an active membership of a few hundred to an annual conference with over four thousand participants. It is estimated that between 1983 and 1990 the number of business/education partnerships in the United States rose from 42,000 to over 140,000. In 1991, then President, George Bush promoted the "America 2000" plan which encouraged communities to work together to reform their schools. At the same time the federal Department of Education's Office of Educational Research and Improvement began funding a number of partnership demonstration projects.

In the early stages of the national partnerships in education movement the focus was largely on relationship building. Partnerships were thought successful if both partners were benefiting from the relationship. Schools benefitted through increase resources such as donated equipment, guest speakers, and tours of local businesses. Businesses

benefitted through an increased positive public visibility and in some cases even got financial incentives through government programs designed to encourage businesses to participate in vocational training of youth. As the partnership movement matures and responds to the changes in the national reform agenda the focus is increasingly moving toward more direct involvement of businesses and community agencies in a broad-based systemic change of schooling structures. The stakes for partnerships in education have been raised from a measure of mutual partner benefits to the ultimate success and long-term outcomes of the whole venture of education. The National Association of Partners in Education board of directors published a white paper in late 1992 in which they called for a paradigm shift where those managing partnerships would lead out in systemic changes in schools and communities. The envisioned changes would involve individuals from all sectors of the community in tutoring and mentoring students, would provide the community infrastructures and resources to systematically and cooperatively plan for the economic and educational futures of school-aged youth, and would restructure school and community systems to facilitate these cooperative ventures. The evaluation of partnerships is also in the process of changing to a more rigorous analysis of the effects of the partnerships on the nature of schooling and on the educational and career outcome of students who are touched by the partnerships.

Setting for the Program

Frequently the most promising and most successful reforms have begun as small-scale local programs and have spread by word of mouth because of their pronounced success. The Marketing/Merchandising/Apparel Program described in this study was conceived as just such a small-scale demonstration of an innovative approach to high school-level vocational education in which cooperative training in local businesses featured as a prominent part. The program set out to break the traditional molds and build a program geared to meet the needs of the youth of the 90's in the modern city of Los Angeles.

The community in which the program functions is faced with problems common to many urban/suburban areas of the country. Los Angeles county has a 10 percent unemployment rate. This rate is growing as the local economy changes from a manufacturing base to a service orientation. Many manufacturing jobs are being transferred to foreign countries, and many are being lost as major defense industries in the area, such as General Dynamics and Hughes Aircraft, are significantly downsizing. The providers of vocational training must be carefully attuned to these changes in the job market so that training programs are geared to the jobs of the future. In the area of fashions, the manufacturing jobs were exported years ago, but the designing, marketing and merchandising of apparel are booming fields, especially in the Los Angeles area. These fields hold a strong appeal, particularly to high school-aged girls. Program graduates find a wide range of employment opportunities and career pathways open to them upon completion.

Original Developer

The Marketing/Merchandising/Apparel Program was developed as a model program by the East San Gabriel Valley Regional Occupational Program through a Vocational Educational award grant in 1986. The program has since continued with state and local funding. East San Gabriel Valley ROP is a nonprofit state-funded agency that operates under a joint powers agreement with six unified school districts to serve the vocational training needs of students served by seventeen high schools. The districts served by the ROP are Azusa, Baldwin Park, Charter Oak, Covina-Valley, Glendora, and West Covina. Besides serving a population of over six thousand high school juniors and seniors with initial job training, the ROP also provides adults and non-student youth with vocational training and retraining.

Intended Audience

The intended audience for which the program was developed was the sixty to eighty percent of high school students who are not college-bound. These are frequently the students who find high school the least relevant to their interests and goals. The majority of the high school population in this area consists of ethnic minorities. In east Los Angeles county Hispanics make up approximately two-thirds of the public school population. The mobility of students makes continuity of an educational program difficult without extensive transportation services. In local schools the annual turnover rate is reported at around 80 percent.

The family structures of school-aged youth are significantly different from those in prior generations. Over 60 percent of students come from single-parent families, and over 80 percent are "latchkey kids" who come home from school to an empty house. This can have profound implications for student motivation and the level of student independence in relation to school. Unless students see the immediate relevance of school to their lives, they simply choose to go elsewhere. Many youths turn to gangs for a sense of belonging. Gang activity and gang-related crime have increased by 74 percent during 1991 alone, according to reports cited by ROP administrators.

The ROP estimates that the average annual high school dropout rate for the area is around 28 percent. In some high schools it is as high as 50 percent. With the cultural and language barriers compounding the learning problems students face, many students struggle to achieve at even average levels in their high school studies. Ninety-three percent of the at-risk students served by the marketing and merchandising apparel program have GPA's below 2.00 when they enter the program in their last two years of high school. Less than 20 percent of all high school attendees in the area pursue post secondary training.

Many students need far more than the traditional academic curriculum can provide. Social services that are intended to meet the needs of youth are not centrally operated and are frequently geographically isolated from one another, making access by youth

particularly difficult. Only when student support services are readily available at or near the school can many high risk youth be nurtured through the transition from school to productive work. The model program serves a broad spectrum of social and educational needs for the audience of individuals ranging in age from sixteen to adult who want to get through high school and/or get better than a minimum-wage dead-end job.

Description of the Program

Goals

The partnership program under review has focussed on seven major goals:

1. To provide opportunities for students to develop the attitudes, skills and knowledge necessary to enter and succeed in industry by placement directly into the workplace.

2. To provide the necessary skills to students who wish to pursue higher education in the business/marketing field.

3. To provide a comprehensive curriculum reviewed regularly by business and industry, meeting both the career and academic needs of all students, as well as each student's individual goals.

4. To provide a curriculum that constantly correlates the practical application of basic literacy skills with the working world.

5. To produce students with marketable job skills including entrepreneurial skills such as marketing, merchandising, and promoting and a clear understanding of the work ethic.

6. To produce competent, aggressive business/marketing leaders ready for management positions and/or small business ownership.

Background, Foundation, and Theoretical Framework

The program is founded on the belief that the task of preparing today's youth for productive membership in society cannot be accomplished by a single agency or institution. The program's coordinators take a pro-active orientation toward meeting student needs by using community resources. Collaborative networking is seen as the key to meeting diverse needs of program participants. Resources from the high schools, the ROP, local businesses, and various social service agencies are integrated in a holistic approach to student development.

When students express an interest in the program, they are provided with a battery of assessments to clarify career interests, motivations, learning styles, and background experiences. Once enrolled in the program, students are provided with group instruction to develop essential social interaction skills, as well as individualized learning experiences to build upon their unique interests and strengths. The program curriculum is constantly being updated through participation of experts in the industry. Instructors are active in their respective industries to keep their skills and knowledge up-to-date. Training within the business setting provides opportunities for job shadowing, job coaching, and mentoring which assure a high success rate in school to work transition. The curriculum has been articulated with area community colleges and trade/technical colleges to encourage students to pursue higher levels of training in their career fields. A variety of social and support services are provided to students as needs are identified. ROP counselors are available to troubleshoot and refer students as necessary. Each of these components are designed to contribute to successful retention, motivation, training or placement of students.

Features: How the Program Operates

The model program is operated as one of many vocational training programs available through the ROP. Although the other programs of the ROP share many of the same components, none but the marketing/merchandising/apparel program has all of the key components. During the five years covered by this report more than seven hundred students were served by the program. The program is run by two full-time female instructors in a single site. The program attracts primarily female students. Students from a number of the area's seventeen high schools are daily bussed to the site for instruction. The program certifies over one hundred students per year.

The key curricular and instructional components of the model are:

1. Early identification and placement of students in support services. The services provided to help students overcome barriers to completing the program include: transportation, child-care, tutoring, mentoring, peer counseling, and professional crisis counseling.

2. Parental involvement that includes the parent in the assessment, goal setting, monitoring, support and follow-up processes.

3. An adaptive curriculum that emphasizes integration of academic and vocational skills development including critical thinking skills.

4. A combination of instructional approaches including work-site learning, cooperative learning groups, peer tutoring/coaching, business/industry mentors and curriculum-based assessment.

5. Enrollment on an open-entry basis that provides the best structure for a variety of initial academic skill levels, various entry dates, and different learning rates of identified students.

6. Academic and vocational instruction taught concurrently and tied into students' career goals and job training.

7. Cooperative liaison with local businesses, colleges, universities, and high schools that link high school students simultaneously with the business community and post secondary institutions. This allows accessibility to both jobs and post secondary education for students who previously may have not realized their potential or would not have otherwise considered additional technical training or college.

8. On-the-job-training at a real work site with opportunities for job shadowing and personalized job coaching. Industry-based job training helps students see the application of learned academic skills. This component of the program is available to students only in the second year. About one quarter of the students choose to complete a second year of the program.

Analysis of Program Effectiveness

Hypotheses

The hypotheses for this analysis were that, relative to other general track high school students, participants in the program would have a higher probability of:

- graduating from high school,
- continuing into higher education, and
- finding upwardly mobile work .

To test these hypotheses, program participants and individuals in a control group of comparable general-track high school students were each given a structured interview after they had been out of high school for one to four years. The interview included questions about graduation from high school, pursuit of higher training, and current job status. As described below, analysis of these interview data largely confirmed the initial hypotheses.

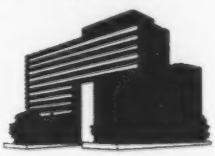
Research Design

Treatment Group
General track high school juniors and seniors in area high schools

Control Group
General track high school juniors and seniors in area high schools

Treatment 1
One year training program
Classroom instruction only

Treatment 2
Two year training program
Classroom instruction and
Work experience learning
in partnership businesses

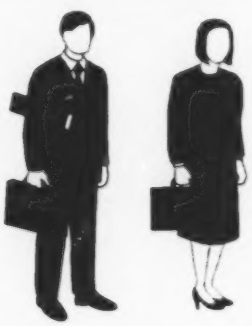


Outcomes Measured

Graduation from high school

College attendance

Employment Status
- Full or part time
- Related to training
- Management track job



Research Methodology

1. Design - To learn the outcomes of students who had been through the model program between 1986 and 1991, a structured telephone interview was conducted with as many as could be reached by phone during the fall of 1991 and spring of 1992. To provide a comparative control group, the same telephone interview was conducted on students who met the following criteria:

- had not attended any ROP vocational courses
- were neither in special education nor advanced placement courses
- had attended some of the same high schools as the treatment group
- had begun high school in the same years as the treatment group (1983-1987)

Using these criteria, the researchers selected a control group that represented high school students on a general-track who were in high school simultaneously with those in the treatment group. The treatment group was divided into two subgroups, treatment 1: those who had only completed one year of the program, and treatment 2: those who had completed two years of the program. The primary difference between the two treatment groups was that the two year students had experienced on-the-job training in businesses that were in partnership with the training institution. To verify that the individuals in the control group were academically similar to those in both the treatment groups, sophomore and senior GPAs were collected for all. Comparisons of sophomore GPAs showed no significant difference between or among the groups.

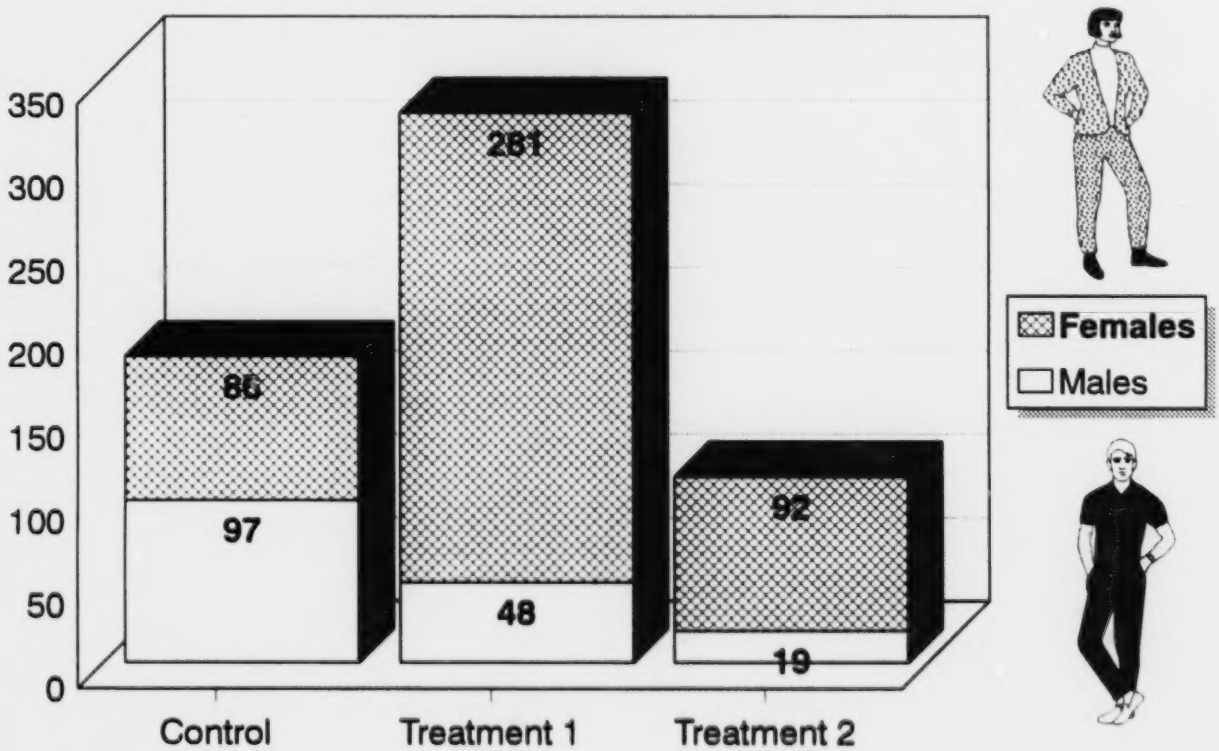
The three groups (control, treatment 1, and treatment 2) were compared on three main outcome areas: (1) graduation from high school, (2) pursuit of higher training/education, and (3) work status. On work status, the groups were further compared on the extent to which they were working (full-time or part-time), the relatedness of their work to their training, and whether their job seemed on a management track.

2. Sample - Interviewers attempted to call 702 former program participants. A total of 485 former participants was actually contacted and interviewed. Thus, nearly 70 percent of the total treatment population that became part of the sample. Of the 485 with interview data, 450 also had grade point averages and were eventually included in the analysis. About one quarter of the 450 in the treatment sample had participated in a second year of training in partnership businesses. The resulting sample size of the two treatment groups was 339 in treatment 1 and 111 in treatment two.

In the control group, 560 former high school students were identified as being on the general-track but not in special education or ROP courses during the same years that the treatment group would have been in high school. A total of 186 of the identified control group was successfully contacted and interviewed. This represented a much lower contact rate of about 33 percent. Most of those who could not be contacted had reportedly relocated since high school. It was unclear from available data whether the apparently greater mobility within the control group was a condition preexisting the

Sample

Size and Characteristics



study or related to a failure to receive the treatment of job training. Grade point averages were collected for all but three of the 186 who were interviewed with a resulting control sample size of 183.

A comparison of the distribution of students by gender in the treatment and control samples showed a skewed gender distribution with many more girls than boys in the treatment group. A comparison of the groups by year in school showed a fairly even distribution over the five years of the study.

(insert Sample Size and Characteristics graphic about here)

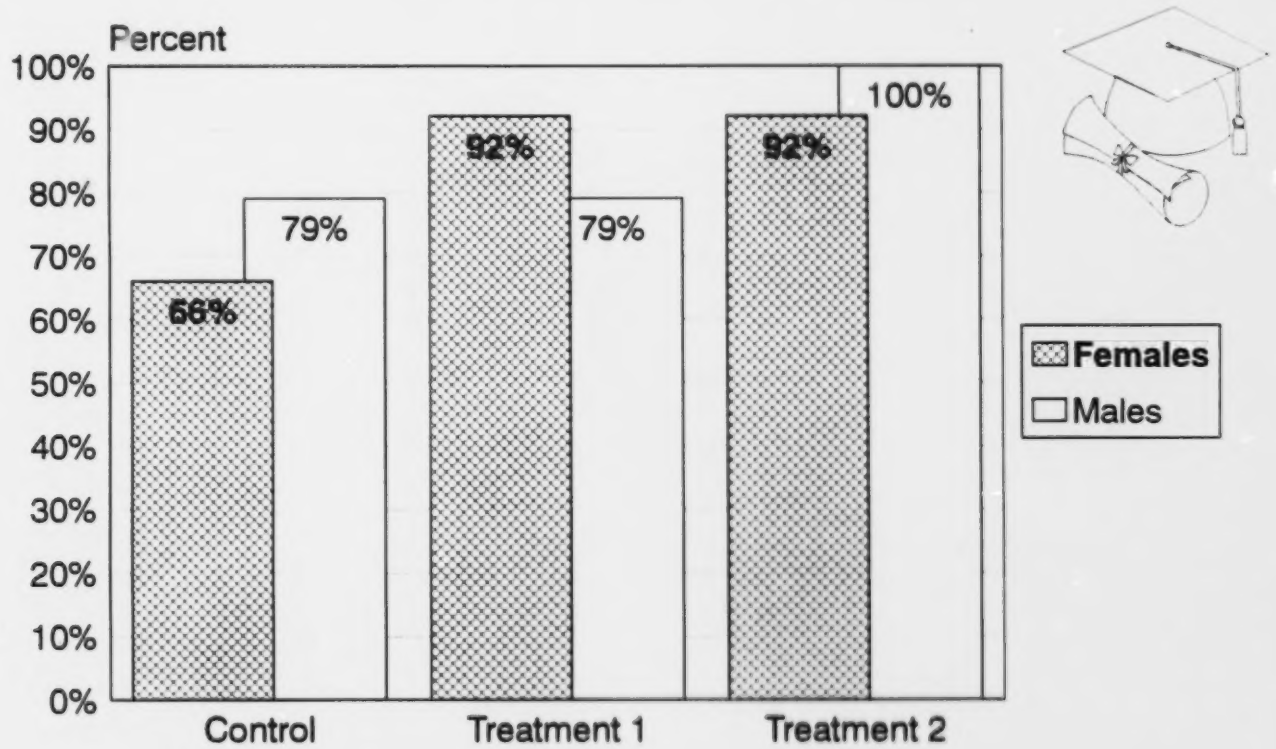
3. Instruments and Procedures - The instrument used in the structured, telephone interview was one initially developed at the ROP for collecting data for state-required annual reports. The state requires follow-up information on program completers, leavers, and post program job status. A phone follow-up technique has been used by the ROP for several years, so the original instrument had received lengthy field testing in an attempt to increase the rates of return for efforts expended in calling. The standard form was modified to include more detailed questions about high school graduation, pursuit of higher education/training, and work status. A copy of the one-page list of questions to ask in the phone interview is included in Appendix A.

4. Data Collection - The actual phone interviews were conducted by two bilingual staff members at the ROP. The interviewers were selected because of their fluency in both English and Spanish, their familiarity with the programs offered by the ROP, and their skills in telephone communication. All of the phone interviews for both the treatment and control groups were conducted between October 1991 and March 1992 by the two interviewers. The data collection was conducted under the supervision of the ROP superintendent and her associate who are both experienced researchers. In the majority of cases, the information was provided directly by the individual students of the study sample. Occasionally, however, the information was relayed by a parent or other close family member of the student. The interviewers believed that the data were generally valid and reliable. They felt that, with the non-threatening introduction they used, the respondents had been very candid.

Interviewee responses to the questions were marked onto a matrix form in which each row represented a former student and each column represented an interview question. The demographic variables of gender, final year in high school, and inclusion in either the control or treatment group were known before the interview. Several questions involved simple yes or no answers. These included queries regarding graduation from high school, completion of a GED, and attendance at college. Several questions were open-ended with responses that were later categorized into groups. These included queries about the type of higher education institution attended, the current employment status, and the type of job held. From these responses the director and associate director of the ROP coded the job types into two

High School Graduation Rates

Among Comparison Groups



categories: (1) jobs unrelated to the training program, (2) jobs related to the training program. An additional coding was done for jobs which were clearly on a management track. These coded matrices were keyed into a personal computer and provided to the evaluators at C.E.R.C. in an electronic format for statistical analysis in August of 1992.

5. Data Analysis - Descriptive statistics were generated using statistical analysis software. Crosstabs were run on the data to generate the tables and graphs presented in following sections. Analyses of significance between groups were conducted using Chi-square treatments. For purposes of this study and report, the descriptive visuals are used to show the differences between the treatment and control groups on the measures of interest in the study.

Description of Results For Each Hypothesis

1. Treatment More Likely to Graduate from High School - This hypothesis was generally substantiated by the data. On a year-by-year analysis, the treatment group had noticeably better graduation rates than the control group in all but the last year of the study (1991). There was also much less variance in the graduation rates of the treatment than the control. The graduation rate of the treatment sample ranged from 84 to 93 percent per year over the five years of the study, a total spread of 9 percentage points. The range of the control sample's rate of graduation was as much as 25 percentage points with a low of 63 percent and a high of 88 percent. The large rate changes from year to year for the control sample suggests either errors of measurement or sampling error. With further data collection and analysis these anomalies should become clear.

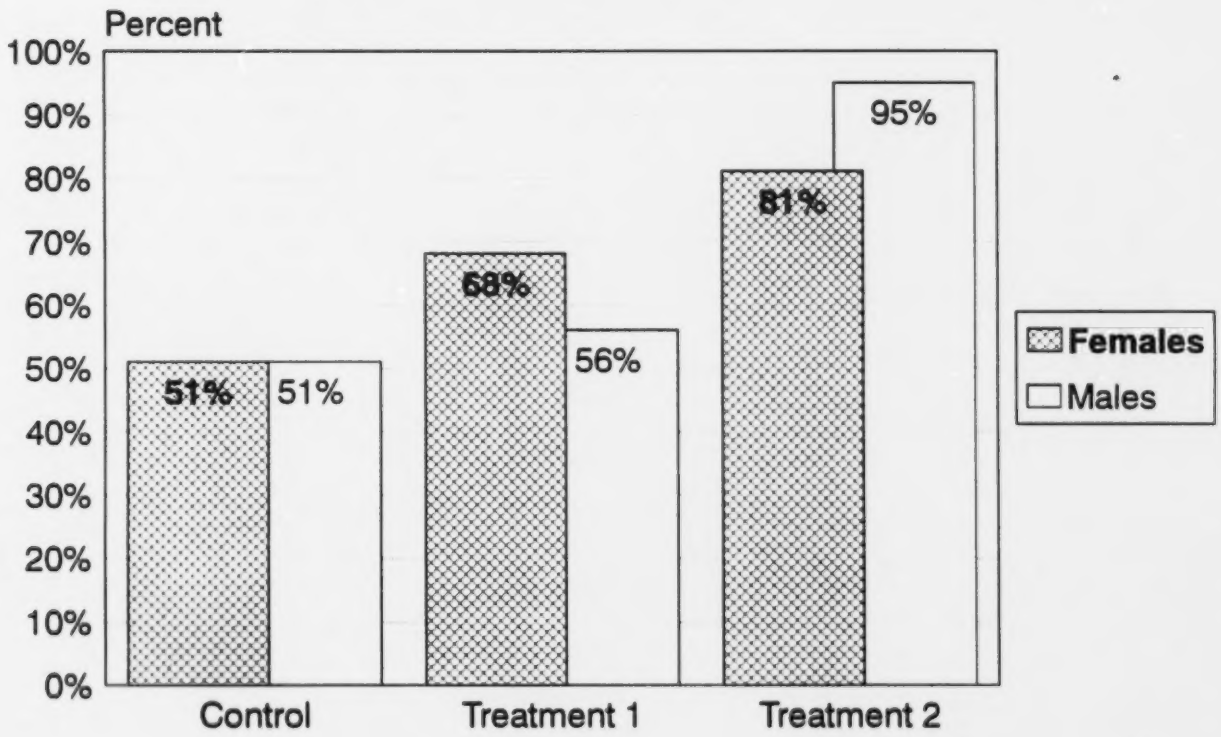
A comparison of the graduation rates by gender showed a very noticeable difference among females in the study. The girls in the treatment group were significantly more likely to graduate from high school than their peers in the control group. The effect of a second year in the treatment program had little effect on graduation rates of girls in the program. The graduation rates for the males in the first year of the treatment were only slightly higher than those of the control. Only 19 males continued into the second year of the program, and although all of them graduated, this small size of this group made it difficult to conclude that the higher graduation rate was attributable to more than chance or the self-selection process.

(insert High School Graduation Rates chart about here)

2. Treatment More Likely to Pursue Higher Education - On the variable of college attendance, the differences between the treatment and control group responses were again mediated by the variable of gender, and the differences between the two treatment groups were marked. In both females and males in the control, the rate of college attendance was 51%. In the males in one year of treatment the rates

College Attendance

Percentage Among Comparison Groups



were only slightly higher at 56%. Males who stayed in the program for the second year placement in businesses were much more likely to attend college (95% attended). Again the small numbers in this sample (19) make it difficult to draw conclusions about program effect. The statistics on the females in the study showed improved rates of college attendance associated with each year of involvement in the program. Nearly 70% of the females in only one year of the program continued on to college, while over 80% of those who took a second year with business placement attended college.

(insert College Attendance graph about here)

3. Treatment More Likely to be Employed - On a year-by-year analysis, the treatment group had employment rates consistently above ninety percent while the control group's rate of employment ranged from 57 to 85%. The greatest difference was noted between those students who had just graduated in the spring of the year in which the follow-up interviews were begun (1991). One hundred percent of the 1991 treatment program students who were interviewed had employment, whereas only 57% of the comparable control group were employed at the time of the interview.

A comparison of the groups by full-time employment showed the most marked contrast between the treatment and control groups of any of the comparisons made. Gender was not a significant variable in this analysis. Individuals in both the treatment groups, were far more likely to be full-time employed than their counterparts in the control group. Of the control group less than half were employed full-time. In both of the treatment groups over 90% were full-time employed. These data on employment seem to offer the strongest evidence of the advantages of the treatment program for youth who are recently out of high school. Additional time training in business seems to add little advantage to getting a full-time job.

(Insert Full-Time Employment graph about here)

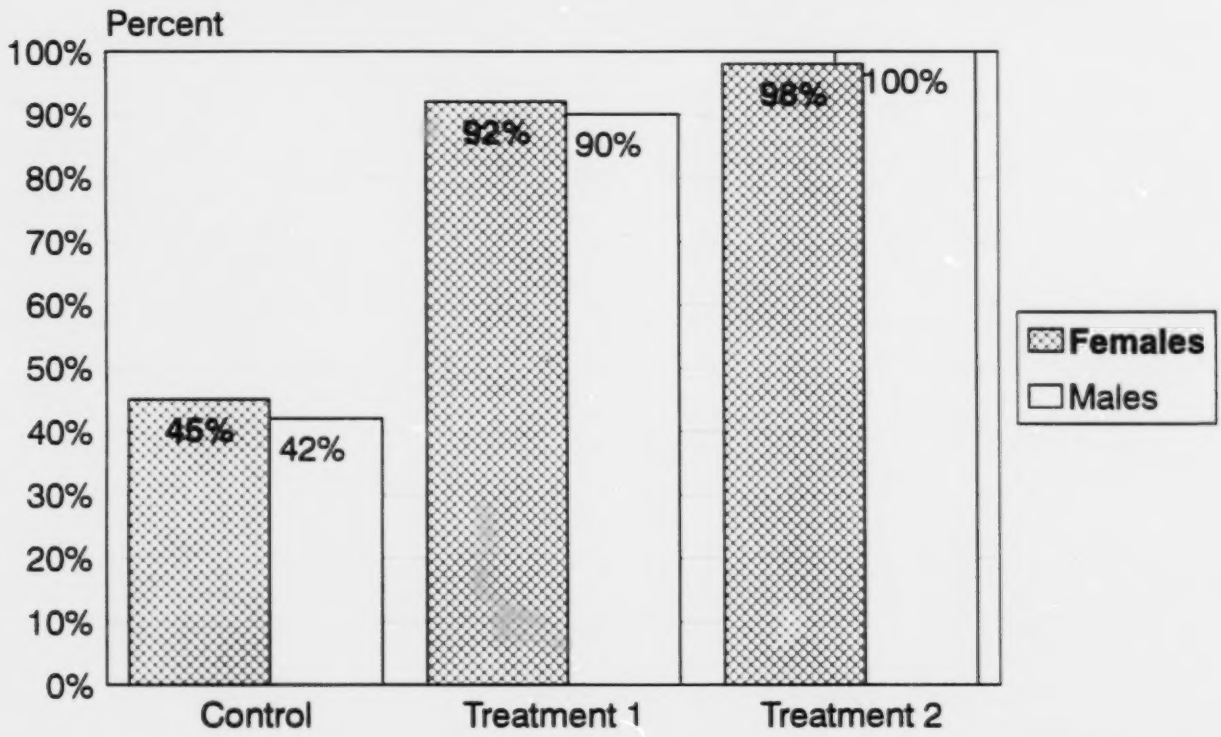
Another way of looking at the employment data was to compare unemployment rates. Unemployment in this case was defined as not holding a wage-earning job. This included full-time students, full-time mothers, and others who were unemployed and not looking for work. By this measure roughly 20% of the control group was unemployed while less than 4% of either of the treatment groups were unemployed.

(insert Not Employed for Wages graph about here)

4. Treatment More Likely to Get Upwardly Mobile Jobs - When comparing all employed individuals in both the treatment and control groups on the variable of whether or not their job title and description indicated a management level or management-track job, the longer the treatment, the greater the chance of being on a management track. Gender was again a mediating variable to some extent. Only about 5% of the employed control group was clearly in management-track jobs.

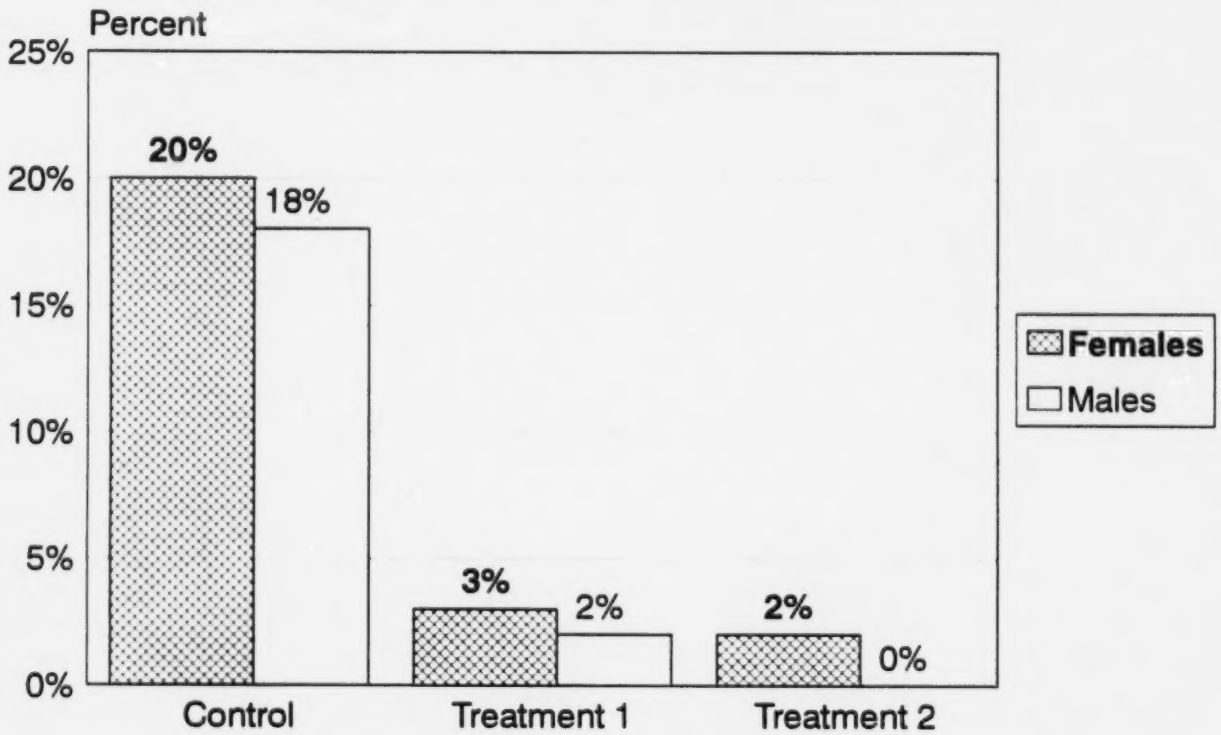
Full-Time Employment

Percentage Among Comparison Groups



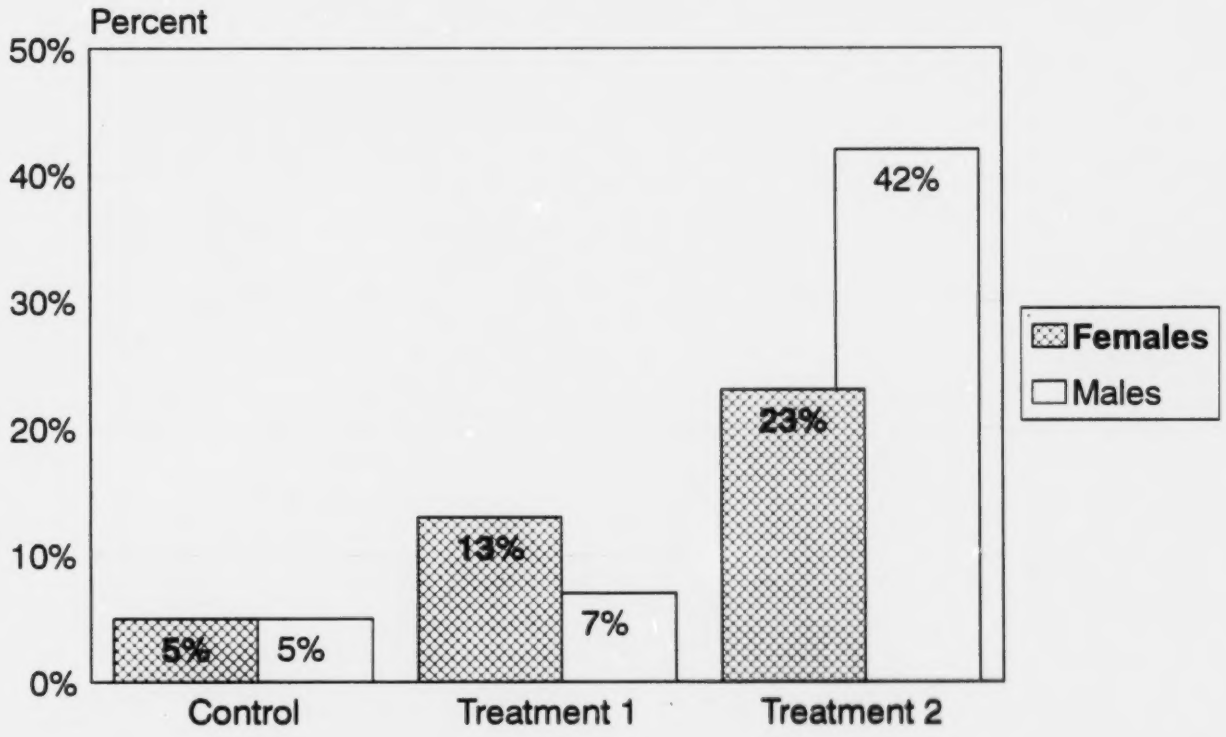
Not Employed For Wages

Percentage Among Comparison Groups



Job is on a Management Track

Percentage Among Comparison Groups



Males who took only the first year of the treatment were only slightly more involved in management (7%). Females in the first year of the program were almost three times more likely than their control counterparts to be in management track positions (13%). The second year of the treatment, with placement in partnership businesses was definitely an important factor in promoting movement into management level positions. Nearly a quarter of the females in the second year treatment group (23%) and close to half of the males with on-the-job training (42%) were clearly on a management track.

(insert Job is on a Management Track about here)

Individuals were listed in management-track jobs if they volunteered during the phone interview that they had been promoted, or if the title of their job seemed to be above an entry level position. This method of determining management-track jobs has some drawbacks. In future forms of the follow-up interview several questions have been added in an attempt to get a clearer picture of whether or not the positions held by former students are upwardly mobile.

Interpretation and Discussion of Results

The results of this study are admittedly preliminary. The data used to generate the tables presented in this report are not sufficiently detailed to be able to completely rule out the presence of intervening variables. The analysis is admittedly limited to a single program of study so the results can not be generalized to all vocational education programs. This study does, however, provide a valuable first look at the possible differences between a general track high school program and one that is supplemented with a focussed career training component as well as the differential effect of on-the-job training in partnership businesses. It provides some beginning evidence of differences and suggests areas for further, more refined study and statistical analysis. Following sections explore the relationships between treatment and effect that warrant further analysis and the possible rival hypotheses that need to be controlled in the next round of study.

Relationship Between Treatment and Effect

The large difference in graduation rates between females in the treatment and control groups and the relatively small differences in graduation rates for males in both groups raise questions of gender-specific treatment effects. Various possibilities for explaining this finding could be suggested and further explored in subsequent analyses. It could be that girls, who are already more motivated and predisposed to staying in school, elect to enter the program, whereas a random sample of boys choose to enter the program. It could be that the majority group in each class (80% girls) sets an expectation for graduation that does not provide the same level of

motivation for the minority group of boys. Another possible explanation has to do with the availability of child care for children of teen parents who enter the program. If this support service makes the difference between staying in school and dropping out, it could explain the big difference for girls, since in the majority of cases of teen parenthood, it is the girl who has primary responsibility for care of the child. To explore these alternative explanations of treatment effect on graduation, one would have to assess student motives for entry and exit from the program, the extent to which students felt the program influenced their decision to stay and complete high school instead of dropping out, and the extent to which support services contributed to program and high school completion.

The program feature which appears to be linked to increased rates of pursuing higher education was the articulation of program curriculum with institutions of higher education. Program administrators report that as students in the program earn college credit for their work at the ROP while still in high school, their own level of self-confidence in their ability to succeed in college seems to increase markedly. In addition, as students are exposed to specific career options with greater earning potential in the field, they seem to more frequently choose education as the best route to self-improvement. The value of education that the program's instructors promote may partially explain the higher rates of college attendance of those who stay for a second year of exposure to these instructors. Exposure to the workplace may also influence some students to continue their education out of a feeling of not being fully prepared to get into the jobs they really want. To confirm these projected relationships between program components and effects on student pursuit of higher education one would have to follow-up on levels of student self-confidence, improvement of grades and study skills, and students' reasons for continuing their studies.

The extreme differences between the treatment and control groups on full-time employment suggests a powerful treatment effect. Over ninety percent of the treatment group was full-time employed, while only about forty percent of the control group held full-time jobs. The program features that could contribute to higher employment rates for the treatment group include tutoring and mentoring, training in specific job skills, on-the-job training and coaching, training in job readiness and job finding skills, and free placement services. Other program characteristics that may contribute to high placement and employment rates include a healthy job market in the field, a relevant and up-to-date curriculum, close connections with business and industry, and instructors who place a high priority on successful full-time placement of their students in training-related jobs. This study confirms the hypothesis that outstanding vocational training increases the likelihood of earlier job placement. It still leaves open the question of which program components contribute the most to successful placement.

An important issue to assess is the value of an earlier beginning in employment that quality vocational training affords. The preliminary analysis of job positions

conducted as part of this study suggests a treatment effect of more rapid ascension to management-level jobs. Although the measurement of this effect is subject to some question, the size of the difference points to some important possibilities for the next round of study. If the treatment program can speed up both placement and promotion to positions of greater responsibility, then it has promise for solving some of the labor force quality problems that have been the source of so much negative press about American education. Clearly, an important feature of the model program that would promote upward mobility on the job is the exposure of students in the program to the career ladder possibilities in their career field. This exposure is facilitated through on-the-job training, job coaching, mentoring, and participation in career-related competitions. To increase the reliability and validity of this finding, the comparability of the treatment and control groups must be more accurately documented, and a more objective means of determining upward mobility must be devised.

Clearly the value of analyzing the characteristics of the jobs that students obtain after completing vocational and career training programs can not be understated. Training agencies should include in their regular student follow-up surveys questions about the career ladder in the workplace, and levels of encouragement received from employers to pursue further education. This would have two profound effects: one would be to make the training institutions more accountable to the quality of the jobs for which they were preparing their students, the second effect would be to send a strong message to the business community about the importance of providing quality working conditions that allow for upward mobility and encourage continuing education.

Control of Rival Hypotheses

A major point of difference between the treatment and control samples was that students who participated in the treatment were self selecting. Without random selection or matching of the two groups, the study design is quasi-experimental and leaves room for rival hypotheses to explain treatment effects. In future analyses much more detailed information about the individuals in both groups will be collected to allow for matched-pair comparisons and more closely approximate an experimental design. Additional data will be collected on ethnicity, age, cumulative grade point averages after second year of high school, and factors that put students at risk of dropping out of high school.

In this first round of analysis little attempt was made to understand or control for the motivational factors associated with self-selection. For example, students who choose to take an ROP course may have significantly higher motivation to complete high school than those who don't choose to take ROP courses. To control for this variable in the next round of analysis, the researchers will assess some level of student motivation for entering the treatment program and the extent to which students felt the program influenced their decision to stay and complete high school. Also measured will be the extent to which support services such as child care and transportation contributed to program and high school completion.

Another self-selection factor that may contribute to pursuit of higher education is a student's level of aspiration. This information is currently being collected for all students in the treatment group both at entry and at the time of follow-up. By using this information as a pre-post evaluation, it will be possible to more clearly document the effect of the treatment on the aspirations for higher learning. The analysis of both treatment and control groups in the future will also include grade improvement through high school and students' reasons for continuing into high education. With these data it will be possible to control for the competing variables of aspiration, ability, and motivation in the explanation of differences in the pursuit of higher education.

One of the more obvious rival hypotheses to the treatment effect of high rates of employment also has to do with initial student motivation and aspiration. If students who want to work are the ones who take ROP courses, it would only be logical that they are the first ones to be employed and working full-time. In the future, it may be necessary to conduct some simple survey of motivation to work in a sample of both types of students to control for the rival hypothesis that self-selection on intake determines the outcomes of employment. Other rival hypotheses are that program participants are competing for jobs in a field in which there are plenty of openings whereas those in the control group are competing for jobs in a wide range of fields in which the jobs are much more scarce. To control for this, one would have to identify the areas of job interest of both groups at exit from high school.

Educational Significance of Results

The enterprise of education in America is faced with a number of challenges. Broad social changes such as the breakdown of the family, the rise of gang warfare in large urban areas, and huge influxes of non-English speaking immigrants bring a very different kind of student into today's schools. Advances in information and technology continue to rapidly transform the workplace requiring a differently-trained worker than was required a decade or a generation ago. Strong pressures from government and business continue to be exerted on schools to produce a labor force that will be competitive in the world's economic battlefront. Educators are challenged with designing innovative training programs which will meet the varied needs of a diverse population in an ever changing economy.

In an urban setting where broken families, new immigrants, and chronic poverty produce high school students who are at risk of alienation from school and society, there is an obvious need for innovative training programs that can capture students' imaginations, engage them in stimulating learning of both academic and practical skills, and motivate them to join the productive mainstream of society. The results of this study, while still needing additional backing, do provide a demonstration of the possibilities of vocational training programs that are carefully conceived and energetically implemented. This particular model program can claim that high school students who choose to participate will have half-again as much chance of continuing into higher education, and more than twice the chance of being employed within the first few years out of high school than their counterparts who take only general classes. The evidence from this study also suggests that placement in a business after a thorough classroom preparation in the career field increases even further the chance that a student will stay in the field of study, go on to further training, and move more rapidly into management level positions on the job.

The educational significance of this program's success is that vocational education, when properly planned and delivered can have a profound impact. Programs with the characteristics contained this model have the potential of revitalizing secondary vocational education. A healthy combination of academic and practical skills in the curriculum can attract and keep students interested in learning. A school climate that emphasis the value of individual students' strengths and interests can heal self-esteems bruised through social ills. The integration of services from a variety of agencies can smooth the transition from adolescence to adulthood. A strong network with institutions of higher learning can open the chance of a college education to underprivileged youth. A shared responsibility with business and industry for training can insure the successful transition from school to productive work life and a more rapid ascension of the career ladder. Comprehensive programs of this nature truly demonstrate what "educational opportunity" is all about.

Appendix A

Follow-up Phone Interview Questions

Introduction

Introduce yourself in the following manner:

> Hello, my name is _____, I am performing a follow-up study of students who have attended ___ High School. I would like to ask you a couple of questions about what you've been doing since you left ___ High School. Your name will not be used or revealed. We're only interested in how all students who attended ___ High School are doing now.

Questions

1. Did you finish high school at ___ High School and receive your diploma?

2. (if not) Did you receive a diploma from another high school?

3. (if neither of the above) Did you take and pass the GED?

4. Are you working now?

5. (if yes) How much? (full-time or part-time) What is your job title or position?

6. (if not working) Have you ever worked since high school? Are you presently seeking employment?

7. (if working or has worked) Was or is your job related to the training you had while in high school?

8. Are you now going to school? If so, what and where are you studying?

9. (if not in school) Have you taken any schooling since high school? If so, where and what did you study?

Notes

If the student is not at the address you call, ask if you can have the telephone number of where they can be located.
You do not need to speak to the student directly. If there is someone else willing to give you the information, they may be used. Grandmothers are especially helpful.